In the Claims:

1. A method for performing time and frequency SNR dependent weighting in speech recognition comprising the steps of:

for each speech frame t estimating the SNR to get time and frequency SNR information $\eta_{t,f}$;

calculating the time and frequency weighting to get $\gamma_{t,f}$;

performing the back and forth weighted time varying DCT transformation matrix computation MG_tM^{-1} to get T_t;

providing the transformation matrix computation T_t and the original MFCC feature o_t that contains the information about the SNR to a recognizer including the Viterbi decoding;

and performing weighted Viterbi recognition $b_j(o_t)$.

2. The method of claim1 wherein $\gamma_{t,f} = \dfrac{\sqrt{\eta_{t,f}}}{1+\sqrt{\eta_{t,f}}}$,

which guarantees that $\gamma_{t,f}$ is equal to 0 when $\eta_{t,f}=0$ and $\gamma_{t,f}$ approaches 1 when $\eta_{t,f}$ is large.

3. A method for performing time and frequency SNR dependent weighting in speech recognition comprising the steps of:

for each period t estimating the SNR to get time and frequency SNR information $\eta_{t,f}$;

calculating the time and frequency weighting to get $\gamma_{t,f}$;

performing the back and forth weighted time varying DCT transformation matrix computation MG_tM^{-1} to get T_t;

providing the transformation matrix computation T_t and the original MFCC feature o_t that contains the information about the SNR to a recognizer including the Viterbi decoding; and performing weighted Viterbi recognition $b_j(o_t)$.

4. The method of claim 3 wherein said estimating step is a pronunciation probability estimation step.

5. The method of claim 3 wherein said estimating step is a transmission over a noisy communication channel reliability estimation.

6. The method of claim 3 wherein $\gamma_{t,f} = \dfrac{\sqrt{\eta_{t,f}}}{1+\sqrt{\eta_{t,f}}}$,

which guarantees that $\gamma_{t,f}$ is equal to 0 when $\eta_{t,f}=0$ and $\gamma_{t,f}$ approaches 1 when $\eta_{t,f}$ is large.